

NOTIFICATION OF ADDENDUM

ADDENDUM NO. 2

DATED 7/03/2014

Control	2681-01-012
Project	C 2681-1-12
Highway	FM 2499
County	DENTON

Ladies/Gentlemen:

Attached please find an addendum on the above captioned project. Included in the attachment is an addendum notification which details the changes and the respective proposal pages which were added and/or changed.

Except for new bid insert pages, it is unnecessary to return any of the pages attached.

Bid insert pages must be returned with the bid proposal submitted to the Department, unless your firm is submitting a bid using a computer print out. The computer print out must be changed to reflect the new bid item information.

Contractors and material suppliers, etc. who have previously been furnished informational proposals are not being furnished a copy of the addendum. If you have a subcontractor on the above project, please advise them of this addendum. Acknowledgment of this addendum is not requested if your company has been issued a proposal stamped "This Proposal Issued for Informational Purposes."

You are required to acknowledge receipt of this addendum on the Addendum Acknowledgement form contained in your bid proposal by placing a mark in the box next to the respective addendum.

Failure to Acknowledge receipt of this addendum in your bid proposal will result in your bid not being read.

SUBJECT: PLANS AND PROPOSAL ADDENDUMS

PROJECT: C 2681-1-12

CONTROL: 2681-01-012

COUNTY: DENTON

LETTING: 07/08/2014

REFERENCE NO: 0702

PROPOSAL ADDENDUMS

_ PROPOSAL COVER

X BID INSERTS (SH. NO.: 3-21 5-21 12-21 13-21 20-21)

X GENERAL NOTES (SH. NO.: C - Z)

X SPEC LIST (SH. NO.: 4-4)

_ SPECIAL PROVISIONS:

ADDED:

DELETED:

X SPECIAL SPECIFICATIONS:

ADDED: 4369

DELETED: 2164

X OTHER: SEE CHANGES OUTLINED BELOW.

DESCRIPTION OF ABOVE CHANGES

(INCLUDING PLANS SHEET CHANGES)

BID INSERTS:

SHEET 3-21: ITEM 403-2001 HAS BEEN REVISED.

SHEET 5-21: ITEM 450-2025 HAS BEEN DELETED.

ITEM 450-2033 HAS BEEN REVISED.

SHEET 12-21: ITEM 618-2022 HAS BEEN REVISED.

ITEM 618-2023 HAS BEEN REVISED.

ITEM 618-2024 HAS BEEN REVISED.

ITEM 618-2025 HAS BEEN REVISED.

SHEET 13-21: ITEM 636-2001 HAS BEEN REMOVED.

ITEM 636-2007 HAS BEEN ADDED.

ITEM 636-2003 HAS BEEN REMOVED.

ITEM 636-2009 HAS BEEN ADDED.

ITEM 644-2056 HAS BEEN ADDED.

SHEET 20-21: ITEM 2164-2001 HAS BEEN DELETED.

ITEM 2164-2002 HAS BEEN DELETED.

ITEM 4369-2001 HAS BEEN ADDED.

ITEM 4369-2002 HAS BEEN ADDED.

ITEM 3268-2008 HAS BEEN REVISED.

INFORMATION MAY HAVE SHIFTED DUE TO THE CHANGES ABOVE.

General Notes

DESCRIPTION OF ABOVE CHANGES

(INCLUDING PLANS SHEET CHANGES)

(CONTINUED)

Sheet C: Table 4 is revised.

Sheet G: Removed note for item 134.

Sheet H: revised note for item 360.

Sheet M: revised note for item 427.

Sheets C - Z Information may have shifted due to the changes above.

Spec List:

Sheet 4-4: Special specification 2164 is deleted.

Special specification 4369 is added.

PLAN SHEETS:

THE FOLLOWING SHEETS HAVE BEEN REPLACED:

23, 23A - 23L, 24A 24C 24E 25 28 29 31 & 186

ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	100	2002	002	PREPARING ROW DOLLARS and CENTS	STA	154.100	1
	104	2001		REMOVING CONC (PAV) DOLLARS and CENTS	SY	3,811.000	2
	104	2009		REMOVING CONC (RIPRAP) DOLLARS and CENTS	SY	218.000	3
	104	2015		REMOVING CONC (SIDEWALKS) DOLLARS and CENTS	SY	621.000	4
	104	2021		REMOVING CONC (CURB) DOLLARS and CENTS	LF	364.000	5
	104	2022		REMOVING CONC (CURB AND GUTTER) DOLLARS and CENTS	LF	1,408.000	6
	104	2046		REMOV STR (SCREEN WALL) DOLLARS and CENTS	LF	26.000	7
	105	2014		REMOVING STAB BASE & ASPH PAV (7"-12") DOLLARS and CENTS	SY	21,820.000	8
	110	2001		EXCAVATION (ROADWAY) DOLLARS and CENTS	CY	105,065.000	9
	132	2025	001	EMBANKMENT (FINAL) (DENS CONT) (TY C1) DOLLARS and CENTS	CY	58,967.000	10

ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	132	2026	001	EMBANKMENT (FINAL) (DENS CONT) (TY C2) DOLLARS CENTS and	CY	25,942.000	11
	161	2014	006	COMPOST MANUF TOPSOIL (BOS OR PB) (4") DOLLARS CENTS and	SY	44,046.000	12
	162	2002		BLOCK SODDING DOLLARS CENTS and	SY	44,046.000	13
	164	2027	002	CELL FBR MLCH SEED(PERM)(URBAN)(CLAY) DOLLARS CENTS and	SY	8,924.000	14
	164	2041	002	DRILL SEEDING (TEMP) (WARM) DOLLARS CENTS and	SY	26,485.000	15
	164	2043	002	DRILL SEEDING (TEMP) (COOL) DOLLARS CENTS and	SY	26,485.000	16
	168	2001		VEGETATIVE WATERING DOLLARS CENTS and	MG	10,285.000	17
	204	2003		SPRINKLING (DUST CONTROL) DOLLARS CENTS and	MG	2,000.000	18
	260	2002	003	LIME (HYDRATED LIME (SLURRY)) DOLLARS CENTS and	TON	2,416.000	19
	260	2009	003	LIME TRT (EXST MATL)(10") DOLLARS CENTS and	SY	6,335.000	20

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	ITEM NO	DESC CODE	S.P. NO.				
	260	2027	003	LIME TRT (EXST MATL)(8") DOLLARS and CENTS	SY	170,952.000	21
	360	2001	013	CONC PVMT (CONT REINF-CRCP)(8") DOLLARS and CENTS	SY	5,600.000	22
	360	2003	013	CONC PVMT (CONT REINF-CRCP)(10") DOLLARS and CENTS	SY	148,302.000	23
	360	2018	013	CURB (TYPE II) DOLLARS and CENTS	LF	62,438.000	24
	400	2005		CEM STABIL BKFL DOLLARS and CENTS	CY	790.000	25
	400	2009		CUT & RESTORING PAV (CONC) DOLLARS and CENTS	SY	105.000	26
	402	2001		TRENCH EXCAVATION PROTECTION DOLLARS and CENTS	LF	17,788.000	27
	403	2001		TEMPORARY SPL SHORING DOLLARS and CENTS	SF	19,692.000	28
	416	2002	001	DRILL SHAFT (24 IN) DOLLARS and CENTS	LF	14,716.000	29
	416	2003	001	DRILL SHAFT (30 IN) DOLLARS and CENTS	LF	9,135.000	30
	416	2004	001	DRILL SHAFT (36 IN) DOLLARS and CENTS	LF	8,402.000	31

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	ITEM NO	DESC CODE	S.P. NO.				
	416	2005	001	DRILL SHAFT (42 IN) DOLLARS and CENTS	LF	1,842.000	32
	416	2031	001	DRILL SHAFT (TRF SIG POLE) (30 IN) DOLLARS and CENTS	LF	22.000	33
	416	2032	001	DRILL SHAFT (TRF SIG POLE) (36 IN) DOLLARS and CENTS	LF	26.000	34
	416	2034	001	DRILL SHAFT (TRF SIG POLE) (48 IN) DOLLARS and CENTS	LF	88.000	35
	423	2001		RETAINING WALL (MSE) DOLLARS and CENTS	SF	69,939.000	36
	423	2011		RETAINING WALL (DRILL SHAFT)(FACIA) DOLLARS and CENTS	SF	25,988.000	37
	432	2001		RIPRAP (CONC)(4 IN) DOLLARS and CENTS	CY	75.000	38
	432	2002		RIPRAP (CONC)(5 IN) DOLLARS and CENTS	CY	19.600	39
	432	2036		RIPRAP (STONE TY R)(DRY)(12 IN) DOLLARS and CENTS	CY	944.000	40
	432	2039		RIPRAP (MOW STRIP)(4 IN) DOLLARS and CENTS	CY	693.200	41
	432	2048		RIPRAP (CONC)(FLUME) DOLLARS and CENTS	CY	356.200	42

ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	450	2033	001	RAIL (TY PR1)(MOD) DOLLARS CENTS and	LF	2,467.000	43
	450	2210	001	RAIL (TY T551)(MOD) DOLLARS CENTS and	LF	7,307.000	44
	450	2646	001	RAIL (TY T551)(NOISE BARRIER)(SPL) DOLLARS CENTS and	LF	2,387.000	45
	462	2003	015	CONC BOX CULV (4 FT X 2 FT) DOLLARS CENTS and	LF	339.000	46
	462	2005	015	CONC BOX CULV (4 FT X 4 FT) DOLLARS CENTS and	LF	242.000	47
	462	2006	015	CONC BOX CULV (5 FT X 2 FT) DOLLARS CENTS and	LF	142.000	48
	462	2011	015	CONC BOX CULV (6 FT X 4 FT) DOLLARS CENTS and	LF	3,580.000	49
	462	2029	015	CONC BOX CULV (10 FT X 5 FT) DOLLARS CENTS and	LF	732.000	50
	462	2030	015	CONC BOX CULV (10 FT X 6 FT) DOLLARS CENTS and	LF	1,435.000	51
	464	2003	006	RC PIPE (CL III)(18 IN) DOLLARS CENTS and	LF	664.000	52
	464	2004	006	RC PIPE (CL III)(21 IN) DOLLARS CENTS and	LF	821.000	53

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	ITEM NO	DESC CODE	S.P. NO.				
	464	2005	006	RC PIPE (CL III)(24 IN) DOLLARS CENTS and	LF	8,611.000	54
	464	2007	006	RC PIPE (CL III)(30 IN) DOLLARS CENTS and	LF	5,744.000	55
	464	2009	006	RC PIPE (CL III)(36 IN) DOLLARS CENTS and	LF	6,724.000	56
	464	2021	006	RC PIPE (CL IV)(18 IN) DOLLARS CENTS and	LF	200.000	57
	465	2005	002	MANH (COMPL)(TY M) DOLLARS CENTS and	EA	62.000	58
	465	2014	002	MANH (COMPL)(JUNCT BOX) DOLLARS CENTS and	EA	3.000	59
	465	2104	002	INLET EXT DOLLARS CENTS and	EA	165.000	60
	465	2111	002	INLET (COMPL)(TY C)(MOD) DOLLARS CENTS and	EA	3.000	61
	465	2195	002	INLET (COMPL)(CURB)(TY 1) DOLLARS CENTS and	EA	82.000	62
	465	2264	002	INLET (COMPL)(CURB)(TY 1)(MOD) DOLLARS CENTS and	EA	1.000	63
	465	2500	002	INLET(COMPL)(DROP)(TY C)(3-GRATE) DOLLARS CENTS and	EA	6.000	64

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	ITEM NO	DESC CODE	S.P. NO.				
	465	2507	002	INLET (COMPL)(DROP)(TY C)(1-GRATE) DOLLARS and CENTS	EA	6.000	65
	465	2564	002	INLET (COMPL)(CURB&GRATE)(TY I) DOLLARS and CENTS	EA	2.000	66
	465	2736	002	INLET (COMPL)(TY H WITH GRATE) DOLLARS and CENTS	EA	3.000	67
	466	2010		WINGWALL (SW-0)(HW=8 FT) DOLLARS and CENTS	EA	2.000	68
	466	2125		HEADWALL (CH-PW-0)(DIA= 24 IN) DOLLARS and CENTS	EA	2.000	69
	466	2332		WINGWALL (PW-1)(HW=9 FT) DOLLARS and CENTS	EA	1.000	70
	467	2288		SET (TY II)(24 IN)(RCP)(6:1)(P) DOLLARS and CENTS	EA	1.000	71
	467	2290		SET (TY II)(30 IN)(RCP)(6:1)(P) DOLLARS and CENTS	EA	1.000	72
	467	2382		SET (TY II)(24 IN)(RCP)(4:1)(P) DOLLARS and CENTS	EA	2.000	73
	467	2461		SET(TY II)(30 IN)(RCP)(3:1)(P) DOLLARS and CENTS	EA	1.000	74
	479	2004		ADJ MANHS (SANITARY) DOLLARS and CENTS	EA	2.000	75

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	ITEM NO	DESC CODE	S.P. NO.				
	479	2005		ADJ MANHS (WATER VALVE BOX) DOLLARS and CENTS	EA	24.000	76
	496	2002		REMOV STR (INLET) DOLLARS and CENTS	EA	11.000	77
	496	2003		REMOV STR (MANHOLE) DOLLARS and CENTS	EA	5.000	78
	496	2004		REMOV STR (SET) DOLLARS and CENTS	EA	5.000	79
	496	2006		REMOV STR (HEADWALL) DOLLARS and CENTS	EA	12.000	80
	496	2007		REMOV STR (PIPE) DOLLARS and CENTS	LF	2,078.000	81
	496	2040		REMOV STR (RET WALL) DOLLARS and CENTS	LF	27.000	82
	496	2043		REMOV STR (SMALL FENCE) DOLLARS and CENTS	LF	5,784.000	83
	500	2001	011	MOBILIZATION DOLLARS and CENTS	LS	1.000	84
	502	2001	033	BARRICADES, SIGNS AND TRAFFIC HAN- DLING DOLLARS and CENTS	MO	24.000	85

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	ITEM NO	DESC CODE	S.P. NO.				
	508	2011	001	CONSTRUCTING DETOURS (TY A) DOLLARS and CENTS	SY	598.000	86
	508	2012	001	CONSTRUCTING DETOURS (TY B) DOLLARS and CENTS	SY	7,688.000	87
	512	2008	002	PORT CTB (FUR & INST)(LOW PROF)(TY 1) DOLLARS and CENTS	LF	2,760.000	88
	512	2009	002	PORT CTB (FUR & INST)(LOW PROF)(TY 2) DOLLARS and CENTS	LF	280.000	89
	512	2026	002	PORT CTB (MOVE)(LOW PROF)(TY 1) DOLLARS and CENTS	LF	1,180.000	90
	512	2027	002	PORT CTB (MOVE)(LOW PROF)(TY 2) DOLLARS and CENTS	LF	220.000	91
	512	2044	002	PORT CTB (REMOVE)(LOW PROF)(TY 1) DOLLARS and CENTS	LF	2,760.000	92
	512	2045	002	PORT CTB (REMOVE)(LOW PROF)(TY 2) DOLLARS and CENTS	LF	280.000	93
	512	2048	002	PORT CTB (FUR & INST)(F-SHAPE)(TY 1) DOLLARS and CENTS	LF	180.000	94
	512	2050	002	PORT CTB (MOVE)(F-SHAPE)(TY 1) DOLLARS and CENTS	LF	180.000	95
	512	2052	002	PORT CTB (REMOVE)(F-SHAPE)(TY 1) DOLLARS and CENTS	LF	180.000	96

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	ITEM NO	DESC CODE	S.P. NO.				
	512	2086	002	PCTB(FUR&INST)(F-SHP TO LOW PROF)(TY T) DOLLARS CENTS and	LF	20.000	97
	512	2087	002	PCTB(MOVE)(F-SHP TO LOW PROF)(TY T) DOLLARS CENTS and	LF	20.000	98
	512	2088	002	PCTB(REMOVE)(F-SHP TO LOW PROF)(TY T) DOLLARS CENTS and	LF	20.000	99
	528	2001		COLORED TEXTURED CONC (4") DOLLARS CENTS and	SY	3,956.000	100
	529	2004		CONC CURB & GUTTER (TY II) DOLLARS CENTS and	LF	1,892.000	101
	529	2007		CONC CURB (DOWEL) DOLLARS CENTS and	LF	364.000	102
	530	2010	006	DRIVEWAYS (CONC) DOLLARS CENTS and	SY	1,482.000	103
	531	2006		CURB RAMPS (TY 2) DOLLARS CENTS and	EA	20.000	104
	531	2010		CURB RAMPS (TY 7) DOLLARS CENTS and	EA	8.000	105
	531	2014		CURB RAMPS (TY 22) DOLLARS CENTS and	EA	2.000	106

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	ITEM NO	DESC CODE	S.P. NO.				
	531	2024		CONC SIDEWALK (5") DOLLARS and CENTS	SY	20,365.000	107
	531	2041		CURB RAMPS (TY 10) DOLLARS and CENTS	EA	22.000	108
	531	2051		CURB RAMPS (TY 10)(MOD) DOLLARS and CENTS	EA	2.000	109
	542	2001		REMOVING METAL BEAM GUARD FENCE DOLLARS and CENTS	LF	85.000	110
	552	2001		WIRE FENCE (TY A) DOLLARS and CENTS	LF	275.000	111
	560	2004	001	MAILBOX INSTALL-S (WC-POST) TY 3 FND DOLLARS and CENTS	EA	3.000	112
	560	2014	001	MAILBOX INSTALL-SP (TIM-POST) TY 5 FND DOLLARS and CENTS	EA	1.000	113
	618	2018		CONDT (PVC) (SCHD 40) (2") DOLLARS and CENTS	LF	221.000	114
	618	2019		CONDT (PVC) (SCHD 40) (2") (BORE) DOLLARS and CENTS	LF	82.000	115
	618	2022		CONDT (PVC) (SCHD 40) (3") DOLLARS and CENTS	LF	1,434.000	116
	618	2023		CONDT (PVC) (SCHD 40) (3") (BORE) DOLLARS and CENTS	LF	658.000	117

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	ITEM NO	DESC CODE	S.P. NO.				
	618	2024		CONDT (PVC) (SCHD 40) (4") DOLLARS and CENTS	LF	1,187.000	118
	618	2025		CONDT (PVC) (SCHD 40) (4") (BORE) DOLLARS and CENTS	LF	658.000	119
	618	2028		CONDT (PVC) (SCHD 80) (1") DOLLARS and CENTS	LF	131.500	120
	618	2036		CONDT (PVC) (SCHD 80) (2 1/2") DOLLARS and CENTS	LF	20.500	121
	618	2038		CONDT (PVC) (SCHD 80) (3") DOLLARS and CENTS	LF	41.000	122
	620	2008	001	ELEC CONDR (NO. 4) INSULATED DOLLARS and CENTS	LF	615.000	123
	620	2009	001	ELEC CONDR (NO. 6) BARE DOLLARS and CENTS	LF	2,185.000	124
	620	2010	001	ELEC CONDR (NO. 6) INSULATED DOLLARS and CENTS	LF	60.000	125
	621	2009		TRAY CABLE (3 CONDR) (14 AWG) DOLLARS and CENTS	LF	3,160.000	126
	624	2014	014	GROUND BOX TY D (162922) W/APRON DOLLARS and CENTS	EA	18.000	127
	628	2188	003	ELC SRV TY D 120/240 070 (NS)SS(E)PS(U) DOLLARS and CENTS	EA	2.000	128

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	ITEM NO	DESC CODE	S.P. NO.				
	636	2007	014	REPLACE EXISTING ALUMINUM SIGNS (TY A) DOLLARS and CENTS	SF	100.750	129
	636	2009	014	REPLACE EXISTING ALUMINUM SIGNS (TY O) DOLLARS and CENTS	SF	1,903.000	130
	644	2001		IN SM RD SN SUP&AM TY10BWG(1)SA(P) DOLLARS and CENTS	EA	32.000	131
	644	2002		IN SM RD SN SUP&AM TY10BWG(1)SA(P-BM) DOLLARS and CENTS	EA	11.000	132
	644	2004		IN SM RD SN SUP&AM TY10BWG(1)SA(T) DOLLARS and CENTS	EA	3.000	133
	644	2010		IN SM RD SN SUP&AM TY10BWG(1)SB(T) DOLLARS and CENTS	EA	1.000	134
	644	2027		IN SM RD SN SUP&AM TYS80(1)SA(U) DOLLARS and CENTS	EA	1.000	135
	644	2030		IN SM RD SN SUP&AM TYS80(1)SA(U-BM) DOLLARS and CENTS	EA	1.000	136
	644	2056		RELOCATE SM RD SN SUP & AM TY 10BWG DOLLARS and CENTS	EA	4.000	137
	644	2060		REMOVE SM RD SN SUP & AM DOLLARS and CENTS	EA	38.000	138

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	ITEM NO	DESC CODE	S.P. NO.				
	658	2330		INSTL DEL ASSM (D-SW)SZ 1(FLX)GND(BI) DOLLARS and CENTS	EA	5.000	139
	662	2004		WK ZN PAV MRK NON-REMOV (W) 4" (SLD) DOLLARS and CENTS	LF	960.000	140
	662	2016		WK ZN PAV MRK NON-REMOV (W) 24" (SLD) DOLLARS and CENTS	LF	40.000	141
	662	2032		WK ZN PAV MRK NON-REMOV (Y) 4" (SLD) DOLLARS and CENTS	LF	8,490.000	142
	662	2067		WK ZN PAV MRK REMOV (W) 4" (SLD) DOLLARS and CENTS	LF	5,800.000	143
	662	2079		WK ZN PAV MRK REMOV (W) 24" (SLD) DOLLARS and CENTS	LF	130.000	144
	662	2098		WK ZN PAV MRK REMOV (Y) 4" (DOT) DOLLARS and CENTS	LF	145.000	145
	662	2099		WK ZN PAV MRK REMOV (Y) 4" (SLD) DOLLARS and CENTS	LF	14,015.000	146
	666	2002		REFL PAV MRK TY I (W) 4" (BRK)(090MIL) DOLLARS and CENTS	LF	15,214.000	147
	666	2011		REFL PAV MRK TY I (W) 4" (SLD)(090MIL) DOLLARS and CENTS	LF	29,930.000	148
	666	2035		REFL PAV MRK TY I (W) 8" (SLD)(090MIL) DOLLARS and CENTS	LF	5,689.000	149

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	ITEM NO	DESC CODE	S.P. NO.				
	666	2041		REFL PAV MRK TY I (W) 12"(SLD)(090MIL) DOLLARS and CENTS	LF	621.000	150
	666	2047		REFL PAV MRK TY I (W) 24"(SLD)(090MIL) DOLLARS and CENTS	LF	2,592.000	151
	666	2053		REFL PAV MRK TY I (W) (ARROW) (090MIL) DOLLARS and CENTS	EA	38.000	152
	666	2095		REFL PAV MRK TY I (W) (WORD) (090MIL) DOLLARS and CENTS	EA	38.000	153
	666	2098		REF PAV MRK TY I(W)18"(YLD TRI)(090MIL) DOLLARS and CENTS	EA	32.000	154
	666	2119		REFL PAV MRK TY I (Y) 6" (SLD)(090MIL) DOLLARS and CENTS	LF	32,643.000	155
	666	2189		PAVEMENT SEALER 4" DOLLARS and CENTS	LF	45,145.000	156
	666	2190		PAVEMENT SEALER 6" DOLLARS and CENTS	LF	32,643.000	157
	666	2191		PAVEMENT SEALER 8" DOLLARS and CENTS	LF	5,689.000	158
	666	2193		PAVEMENT SEALER 12" DOLLARS and CENTS	LF	621.000	159
	666	2195		PAVEMENT SEALER 24" DOLLARS and CENTS	LF	2,592.000	160

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	ITEM NO	DESC CODE	S.P. NO.				
	666	2219		PAVEMENT SEALER (ARROW) DOLLARS and CENTS	EA	38.000	161
	666	2220		PAVEMENT SEALER (WORD) DOLLARS and CENTS	EA	38.000	162
	666	2257		PAVEMENT SEALER (YLD TRI) DOLLARS and CENTS	EA	32.000	163
	672	2012	034	REFL PAV MRKR TY I-C DOLLARS and CENTS	EA	284.000	164
	672	2015	034	REFL PAV MRKR TY II-A-A DOLLARS and CENTS	EA	45.000	165
	672	2017	034	REFL PAV MRKR TY II-C-R DOLLARS and CENTS	EA	761.000	166
	678	2001		PAV SURF PREP FOR MRK (4") DOLLARS and CENTS	LF	45,145.000	167
	678	2002		PAV SURF PREP FOR MRK (6") DOLLARS and CENTS	LF	32,643.000	168
	678	2003		PAV SURF PREP FOR MRK (8") DOLLARS and CENTS	LF	5,689.000	169
	678	2004		PAV SURF PREP FOR MRK (12") DOLLARS and CENTS	LF	621.000	170
	678	2006		PAV SURF PREP FOR MRK (24") DOLLARS and CENTS	LF	2,592.000	171

ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	678	2007		PAV SURF PREP FOR MRK (ARROW) DOLLARS and CENTS	EA	38.000	172
	678	2018		PAV SURF PREP FOR MRK (WORD) DOLLARS and CENTS	EA	38.000	173
	678	2019		PAV SURF PREP FOR MRK (18") (YLD TRI) DOLLARS and CENTS	EA	32.000	174
	680	2002		INSTALL HWY TRF SIG (ISOLATED) DOLLARS and CENTS	EA	2.000	175
	681	2001	002	TEMP TRAF SIGNALS DOLLARS and CENTS	EA	1.000	176
	682	2001	003	BACK PLATE (12 IN) (3 SEC) DOLLARS and CENTS	EA	25.000	177
	682	2002	003	BACK PLATE (12 IN) (4 SEC) DOLLARS and CENTS	EA	6.000	178
	682	2022	003	VEH SIG SEC (12 IN) LED (GRN ARW) DOLLARS and CENTS	EA	6.000	179
	682	2023	003	VEH SIG SEC (12 IN) LED (GRN) DOLLARS and CENTS	EA	25.000	180
	682	2024	003	VEH SIG SEC (12 IN) LED (YEL ARW) DOLLARS and CENTS	EA	12.000	181
	682	2025	003	VEH SIG SEC (12 IN) LED (YEL) DOLLARS and CENTS	EA	25.000	182

ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	682	2026	003	VEH SIG SEC (12 IN) LED (RED ARW) DOLLARS and CENTS	EA	6.000	183
	682	2027	003	VEH SIG SEC (12 IN) LED (RED) DOLLARS and CENTS	EA	25.000	184
	682	2066	003	PED SIG SEC (12 IN) LED (COUNTDOWN) DOLLARS and CENTS	EA	16.000	185
	684	2031		TRF SIG CBL (TY A) (14 AWG) (5 CONDR) DOLLARS and CENTS	LF	1,177.000	186
	684	2033		TRF SIG CBL (TY A) (14 AWG) (7 CONDR) DOLLARS and CENTS	LF	1,088.000	187
	684	2047		TRF SIG CBL (TY A) (14 AWG) (21 CONDR) DOLLARS and CENTS	LF	1,091.000	188
	684	2079		TRF SIG CBL (TY C) (12 AWG) (2 CONDR) DOLLARS and CENTS	LF	2,294.000	189
	686	2029		INS TRF SIG PL AM(S) 1 ARM (28') LUM DOLLARS and CENTS	EA	2.000	190
	686	2049		INS TRF SIG PL AM(S) 1 ARM (48') LUM DOLLARS and CENTS	EA	2.000	191
	686	2057		INS TRF SIG PL AM(S) 1 ARM (55') LUM DOLLARS and CENTS	EA	3.000	192
	686	2061		INS TRF SIG PL AM(S) 1 ARM (60') LUM DOLLARS and CENTS	EA	1.000	193

ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	687	2001	005	PED POLE ASSEMBLY DOLLARS and CENTS	EA	8.000	194
	1122	2001	001	ROCK FILTER DAMS (INSTALL) (TY 1) DOLLARS and CENTS	LF	495.000	195
	1122	2003	001	ROCK FILTER DAMS (INSTALL) (TY 3) DOLLARS and CENTS	LF	30.000	196
	1122	2009	001	ROCK FILTER DAMS (REMOVE) DOLLARS and CENTS	LF	525.000	197
	1122	2016	001	CONSTRUCTION EXITS (INSTALL) (TY 1) DOLLARS and CENTS	SY	250.000	198
	1122	2019	001	CONSTRUCTION EXITS (REMOVE) DOLLARS and CENTS	SY	250.000	199
	1122	2037	001	TEMPORARY SEDIMENT CONTROL FENCE INSTLL DOLLARS and CENTS	LF	17,129.000	200
	1122	2048	001	BIOGRD EROSN CONT LOGS (12" DIA)INSTALL DOLLARS and CENTS	LF	2,125.000	201
	1122	2049	001	BIOGRD EROSN CONT LOGS (18" DIA)INSTALL DOLLARS and CENTS	LF	2,440.000	202

ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	1122	2056	001	BIODEGRADBLE EROSION CONTROL LOGS REMOV DOLLARS CENTS and	LF	4,565.000	203
	1122	2057	001	TEMPORARY SEDIMENT CONTROL FENCE REMOVE DOLLARS CENTS and	LF	17,129.000	204
	2271	2001		ADJUSTING EXIST FIRE HYDRANT ASSEM- BLY DOLLARS CENTS and	EA	5.000	205
	3268	2008		D-GR HMA TY-B PG64-22 DOLLARS CENTS and	TON	39,998.000	206
	3268	2022		D-GR HMA TY-C PG64-22 DOLLARS CENTS and	TON	1,337.000	207
	4369	2001		STORMWATER TREATMENT UNIT (TY A1) DOLLARS CENTS and	EA	1.000	208
	4369	2002		STORMWATER TREATMENT UNIT (TY A2) DOLLARS CENTS and	EA	1.000	209
	5296	2006		NOISE WALL (8 FT) DOLLARS CENTS and	SF	72,240.000	210
	5445	2001		DEAD END ROADWAY BARRICADE DOLLARS CENTS and	LF	24.000	211
	6007	2001		REMOVING TRAFFIC SIGNALS DOLLARS CENTS and	EA	1.000	212

ALT	ITEM-CODE			UNIT BID PRICE ONLY. WRITTEN IN WORDS	UNIT	APPROX QUANTITIES	DEPT USE ONLY
	ITEM NO	DESC CODE	S.P. NO.				
	8615	2001		RADAR ADVANCE DETECTION DEVICE DOLLARS and CENTS	EA	4.000	213
	8835	2001		ACCESSIBLE PEDESTRIAN SIGNAL UNITS DOLLARS and CENTS	EA	16.000	214
	8889	2003		INSTALL LED LUMINAIRE (.25KW EQ) DOLLARS and CENTS	EA	8.000	215
	8941	2001		RADAR PRESENCE DETECTOR DOLLARS and CENTS	EA	8.000	216

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SW3P RESPONSIBILITIES**TxDOT Area of Responsibility**

Responsible for the area defined by the limits of the subject project, except for those areas utilized and operated by the contractor. These areas include, though are not limited to, areas used for field offices, equipment and/or material storage, and concrete or asphalt plants.

TxDOT Operational Responsibility

Responsible for seeking coverage under the TPDES Construction General Permit (CGP) and operating the project within the requirements of the CGP for discharging storm water from the subject project and to notify MS4 permit holders of the intent to discharge storm water.

File a Notice of Termination with TCEQ upon completion of the project when the exposed areas have been stabilized with a vegetative cover of at least 70%.

Contractor Area of Responsibility

Responsible for all areas under their direct operational control which includes, though not limited to, areas used for field offices, equipment and/or material storage, and concrete or asphalt plants. These areas may be located on or off the subject project's R.O.W.

Contractor Operational Responsibility

Responsible for seeking coverage under the TPDES Construction General Permit (CGP) and adhering to all requirements of the permit for discharging storm water from the areas under their operational control. Perform regular inspections, prepare a written report of deficiencies, and repair deficiencies within the time frame set forth by the permit. File a Notice of Termination with TCEQ upon completion of the project when the exposed areas have been stabilized with a vegetative cover of at least 70%.

Responsible under contractual obligations to TxDOT to install, clean, repair, replace or remove sediment and erosion control devices as indicated on TxDOT's Inspection Reports, or as required by daily construction practices, within the time frame set forth by the permit.

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SPECIFICATION DATA

Table 1: Soil Constants Requirements				
Item	Description	Plasticity Index		Note
		Max	Min	
132	Embk(DC) (Type C1)	40	8	1
132	Embk(DC) (Type C2)	25	10	2

Note 1: Material excavated from the project must meet the PI requirements when used in the top 10 feet of embankment that supports the pavement structure or other locations shown in the plans. Do not use shale and obtain approval to incorporate shaley clay produced by the construction project.

Note 2: Use as a non-select embankment backfill as defined under Item 423.2.C.1. Use as an embankment to backfill behind abutments to the extent of the approach slab or to backfill areas enclosed by an abutment and / or retaining walls or other locations as shown in the plans.

Table 2: Basis of Estimate for Permanent Construction						
Item	Description	Thickness	Rate		Quantity	
161	Compost Topsoil (BS or PB)	4"			44,046	SY
162	Block Sod	N/A			44,046	SY
164	Cell Fbr Mulch Seed (P)(U)(C)	N/A			8,924	SY
166 *	Fertilizer (12-6-6)	N/A	500	Lb/Ac	2.74	Ton
168	Vegetative Watering**	N/A	7	Mg/Ac	1,530	Mg
204	Sprinkling (dust cont)	N/A	10	Mg/Sta	2,000	Mg
260	Hydrated Lime (slurry)	8"-10"		4% by wt	2,343	Ton
260	Hydrated Lime (slurry)	8"		7% by wt	73	Ton
3268	Hot Mix Asphalt (Ty B)	4"-6"	110	Lb/(SY*In)	39,998	Ton
3268	Hot Mix Asphalt (Ty C)	2"-4"	110	Lb/(SY*In)	1,337	Ton
* For contractor's information only						
** Adjust for actual field conditions/temperatures as necessary. See Vegetation Establishment Plan Sheet for estimated daily rates.						
Note: (1) Base material weight based on 1.50 Ton/CY (dry- compacted) (2) Asphalt weight based on 110 (Lb/SY*In) (3) Subgrade weight based on 1.5 Ton/CY (dry- compacted)						

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Table 3: Basis of Estimate for Temporary Erosion Control Items				
Item	Description	Rate		Quantity
164	Drill Seeding (Temp) (Warm)	See Specifications		26,485 SY
166*	Fertilizer (12-6-6)	500	Lb/Ac	1.37 Ton
168	Vegetative Watering (Warm)**	7	MG/Ac/Day	7,661 MG
164	Drill Seeding (Temp) (Cool)	See Specifications		26,485 SY
166*	Fertilizer (12-6-6)	500	Lb/Ac	1.37 Ton
168	Vegetative Watering (Cool)**	1	MG/Ac/Day	1,094 MG
*For Contractor's Information Only. **Adjust for Actual Field Conditions/Temperatures as Necessary. See Vegetation Establishment Sheet for estimated daily rates.				

Table 4: Basis of Estimate for Finish Colors (Items 427 & 446) ¹		
Element	Color	Specification Number ²
Form Liner Retaining Wall and Noise Wall Surfaces (base color)	Maple sugar (7a)	30475
Alternating stone pattern for retaining wall and noise wall surfaces (accent color) (hand painted)	Brown Special	10140
Retaining wall coping and other components except form liner surfaces	Maple sugar (5a)	33617
Concrete rail surfaces	Maple sugar (5a)	33617

1. Unless otherwise noted, it is the intent of these plans that all exposed surfaces (concrete or steel) of bridges, retaining walls, concrete traffic railing and concrete traffic barrier be given a tinted coating as shown or as directed. Such coating shall meet the applicable provisions of Item 427 or Item 446.
2. Federal Standard 595b colors.

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GENERAL

Access will be provided to all business and residences at all times. Where turning radii are limited during phased construction at intersections, provide all weather surfaces such as RAP or base in turning movements to accommodate and to protect the traffic from edge drop-offs. Materials, labor, maintenance and removal for these temporary accesses and radii will not be paid for directly but will be considered subsidiary to the various bid items.

The construction, operation and maintenance of the proposed project will be consistent with the state implementation plan as prepared by the Texas Commission on Environmental Quality.

The disturbed area for this project, as shown on the plans is 53 acres. However, the Total Disturbed Area (TDA) will establish the required authorization for storm water discharges. The TDA of this project will be determined by the sum of the disturbed area in all project locations in the contract, and all disturbed area on all Project-Specific Locations (PSL) located in the project limits and/or within 1 mile of the project limits. The department will obtain an authorization to discharge storm water from the Texas Commission on Environmental Quality (TCEQ) for the construction site as shown on the plans, according to the TDA of the project. The contractor will obtain any required authorization from the TCEQ for the discharge of storm water from any PSL for construction support activities on or off of the project row according to the TDA of the project. When the TDA for the project exceeds 1 acre, provide a copy of the appropriate application of permit (NOI, or Construction Site Notice) to the engineer, for any PSL located in the project limits or within 1 mile of the project limits. Follow the directives and adhere to all requirements set forth in the TCEQ, Texas Pollution Discharge Elimination System, Construction General Permit (TPDES, CGP).

This project required permits with environmental resources agencies. There is a high probability that an environmentally sensitive area could be encountered on the contractor designated Project-Specific Locations (PSL) for this project (haul roads, equipment staging areas, borrow pits, disposal sites, field offices, storage areas, parking areas, etc.). Item 7.19.F, "Project-Specific Locations", will provide a listing of regulatory agencies that may need to be contacted regarding this project.

Prior to contract letting, bidders may request electronic earthwork information by email.

Email: nancy.cline@txdot.gov or jeffrey.bush@txdot.gov

Earthwork files will be provided by email or by using TxDOT's Dropbox FTP Service.

Bidders may also obtain a free computer diskette that contains earthwork information from the engineer's office. Paper copies of cross-sections may be produced by using the provided free diskette at the bidders' expense and at copying companies. This data is for non-construction purposes only and it is the responsibility of the prospective bidder to validate the enclosed data with appropriate plans, specifications and estimate for the project(s).

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Install traffic marking signs prior to sealcoat application and remove within three days after placement of traffic markings.

Leave all right of way areas undisturbed until actual construction is to be performed in said areas.

Use established industry and utility safety practices to erect poles, luminaries, signs or structures near any overhead or underground utility. Consult with the appropriate utility company prior to beginning such work.

Underground utilities owned by the Texas Department of Transportation may be present within the Right-Of-Way on this project. For signal, illumination, surveillance, and communications & control maintained by TxDOT, call the TxDOT Traffic Signal Office (214-320-6682) for locates a minimum of 48 hours in advance of excavation. For irrigation systems, call TxDOT Maintenance Landscape Office (214-320-6205) for locates a minimum of 48 hours in advance of excavation. If city or town owned irrigation facilities are present, call the appropriate department of the local city or town a minimum of 48 hours in advance of excavation. The Contractor is liable for all damages incurred to the above mentioned utilities when working without having the utilities located prior to excavation.

For the project to be deemed complete, permanently stabilize all unpaved disturbed areas of the project with a vegetative cover at a minimum of 70% density for the control of erosion.

Locate all utilities, both underground and above ground, in the project area prior to beginning work so that conflicts are avoided.

Repair or replace any structures and utilities that might have been damaged by negligence or a failure to have utility locates performed.

Perform all electrical work in accordance with the National Electrical Code and Texas Department of Transportation Specifications.

Consult with appropriate electric company representatives according to their respective area to coordinate electrical services installations.

Meet weekly with the engineer to notify him or her of planned work for the upcoming week.

Provide the engineer with a daily work schedule of planned work.

Submit pre-letting questions, by email only, to the attention of Area Engineer or Assistant Area Engineer.

Email: nancy.cline@txdot.gov or jeffrey.bush@txdot.gov

Answers will be provided by email.

An electronic file containing pre-letting questions and TxDOT answers will be provided upon email request.

Material On Hand (MOH) will not be used in calculating partial payments for Mobilization.

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Provide the Engineer with a copy of all DBE subcontractor agreements prior to commencing work.

Submit all shop drawings, working drawings, or other documents which require review sufficiently in advance of scheduled construction to allow no less than thirty (30) calendar days for review and response.

The following standard detail sheets have been modified:

RW(MSE)DD(MOD); RW(MSE); Type PR1(MOD); Type T551(MOD); RAC(MOD); SMA-80(1)-12(DAL); SMA-80(2)-12(DAL); LMA(1)-12(DAL); LMA(2)-12(DAL); LMA(4)-12(DAL); LMA(5)-12(DAL); MA-D-12(DAL)

Item 8:

This Project will be a Five-Day Workweek in accordance with Article 8.3.A.1.

Item 100:

Remove the existing roadway small signs, delineators and object markers as shown on the plans, or as directed, during construction within the right of way. Small sign, delineator and object marker removals are subsidiary to this Item.

The limits of preparing right of way will be measured from Sta. 12+00 to Sta. 166+10 along the centerline of construction.

Item 104:

In those areas where the pavement is not to be overlaid, provide a smooth surface after the curb removal. Planning or grinding is considered an acceptable method at these locations. Measurement and payment is in accordance with this item.

Sawing of concrete is not paid for directly, but is considered subsidiary to this item.

Items 105:

Take possession of recycled asphalt pavement from the project and recycle the material.

Properly dispose of unsalvageable material at your own expense.

Item 110:

Scarify and loosen the excavated areas, unpaved surface areas, except rock, to a depth of at least 8 inches and compact in accordance with the specifications.

Perform the following test by an approved laboratory on excavated soils when used for roadway embankment: 1- Tex-145-E (Sulfate Content in Soils), 2- Tex-106-E (Plasticity Index). Provide the above-mentioned test results on sources outside of the right of way at no expense to the department. Contact the engineer for a list of approved laboratories. Notify the engineer 72 hours before sampling and testing material. Perform split-sample verification testing with the engineer when directed. The engineer will sample and test soils produced by the construction project for specification requirements or material sources specified in the plans.

It is the contractors responsibility to verify the storm sewer pipe depths before commencing roadway grading operations. There may be areas where storm sewer pipes are in the

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subgrade. The contractor shall propose a sequence of subgrade construction, for approval, that addresses how they are going to construct the drainage structures in these low cover areas.

Excavated shale is not an acceptable material for embankment.

Items 110 and 132:

Excavation and embankment for driveways, sleeper slabs, alleys and intersections will not be paid for directly, but will be considered subsidiary to these items.

Item 132:

Excavated material from the project site has not been determined to be suitable for embankment. The bidder assumes all risk for the use of excavated materials for embankment and is expected to meet all material requirements for embankment regardless of the source.

Earth embankment Type C1 and C2, are mainly composed of material other than shale. Furnish material that is free from vegetation or other objectionable material and that conforms to the requirements of Table 1 (Sheet B). If necessary, add lime slurry in accordance with Item 260, "Lime Treatment (Road-Mixed)" in order to meet these requirements. Use Tex-121-E, figure 1, page 5 to calculate the amount of lime required. Furnish material containing sulfate at or below the threshold of 5000 parts per million (ppm). For material with sulfate levels greater than 3000 ppm, allow the mixture to mellow for at least three days, or as directed. Test soil for sulfate levels in accordance with Tex-145-E. Use an approved laboratory to perform tests for sulfate and plasticity index and provide results on sources outside the right of way to the department. Contact the engineer for a list of approved laboratories. Notify the engineer 48 hours before sampling and testing material. Perform split-sample verification testing with the engineer when directed. The engineer will sample and test material produced by the construction project for specification requirements or material sources specified in the plans. The engineer will test material placed or excavated to a depth of one foot below and laterally to one foot outside the proposed treatment limit. Lime treatment and testing of this material will not be paid for directly, but will be considered subsidiary to this item.

Do not use shaley clays in embankment unless approved in writing.

Use embankment material Type C2 described in Table 1 "Soil Constants Requirements" for embankments behind bridge abutments to the extent of the bridge approach slabs, and other embankments enclosed by an abutment and / or retaining walls.

Item 160:

Sequence construction operations to salvage topsoil from one location and spread on areas ready to receive topsoil. Keep stockpiling of topsoil to a minimum.

Use fertile clay or loam from the project site not more than two feet below natural grade as topsoil.

Item 161:

Provide tickets representing quantity of compost delivered to site.

Item 260:

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Furnish and distribute MS-2 smoothly and evenly at the rate of 0.20 gallons per square yard to cure lime, as directed.

Provide Commercial Lime Slurry and apply lime by slurry placement method.

Item 320:

Material Transfer Device is required.

Item 360:

Use of multiple piece tiebars will be required. Provide chairs for multiple piece tiebars, threaded connectors or other adequate devices, used in concrete paving, or tie them to the pavement reinforcing steel. If approved by the engineer for specific areas, in lieu of multiple piece tiebars, drill holes into the pavement and grout straight tiebars in place with epoxy. Use a non-impact, rotary core drill to prevent damage to the pavement unless otherwise directed. Clean the drill holes and then completely fill with epoxy before inserting the tiebar. Do not bend the tiebars or insert them into plastic concrete without the approval of the engineer.

Provide curbs monolithically constructed with the concrete pavement. If continuous monolithic curb has to be temporarily omitted for any reason, provide dowelled curbs in the proposed areas, as detailed in the plans, and apply an approved epoxy resin to the pavement to receive the curb as directed. This work and materials will not be paid for directly, but is considered subsidiary to this item.

Stockpile the concrete aggregates at the plant site.

Provide pavement widening joints, as detailed in the plans, at all locations where concrete pavement is placed adjacent to existing concrete pavement. Installation of these joints is not paid for directly, but is considered subsidiary to this item.

Payment for furnishing and installing the pre-molded expansion joint material between the retaining walls and concrete pavement is not paid for directly, but is considered subsidiary to this item.

Provide a curing machine equipped with rubber tires, or other acceptable arrangement, so that the machine will span the pavement and monolithic curb.

Curb transition is paid for as Type II curb.

The installation of curb openings is not paid for directly, but is considered subsidiary to this item.

Place construction, sawed and contraction joints in accordance with the pavement detail sheet and as directed. Joint locations, other than as shown on the plans, are subject to approval. Pavement leaveouts are required on this project as necessary to provide for traffic at driveways and side streets as shown in the plans or as directed. The cost of providing these leaveouts, including the construction of a suitable crossover connection at each site, is not paid for directly but is considered subsidiary to this item.

If a traveling form paver is used, provide one equipped with an electronically operated horizontal control device.

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Provide tiebars in longitudinal joints but do not place them within 15 inches of transverse joints.

Use "mechanical steel placing equipment" at the discretion of the engineer.

Contractor personnel performing job-control testing on concrete must be ACI- Certified. Provide a copy of certification paper to the Engineer upon arrival and before testing at job site. Furnish hard copies of calibration reports for testing equipment when non-TxDOT approved equipment is used to test concrete.

The engineer may allow the use of local commercial laboratories under contract to provide these services.

If more than 30% of an area in any 1000-Ft section of roadway requires grinding, action will be taken by the Contractor to make that 1000-Ft full width section uniform without changing ride quality, compromising quality of pavement and decreasing skid resistance. Approved blasting method or other method approved by the Engineer will be performed at the Contractor's expense.

Item 400:

Structural Excavation is not paid for directly but is considered subsidiary to pertinent Items.

When placing concrete storm drain pipe on slopes of greater than 10 percent, provide cement stabilized backfill to a depth shown on the plans. The aggregate shall conform to the requirements of Article 421.2.E.2.

Item 416:

Provide a formed smooth finish for all portions of drill shafts extending above proposed ground. Include cost for this work in the unit bid price for this item.

Traffic signal pole foundations will be paid for once regardless of extra work caused by obstructions.

Install a 5/8"x10' copper clad ground rod in each traffic signal pole foundation. The ground rod for each foundation will protrude above the finish grade of the foundation a minimum of 1" and a maximum of 2".

Item 420:

Apply an ordinary surface finish to all concrete surfaces within 30 days after form removal.

Form columns to a point a minimum of one foot below the proposed future or existing bottom of channel elevation indicated on the bridge layouts by an acceptable method. This form work is not paid for directly, but is considered subsidiary to this item.

NATIONAL BRIDGE INVENTORY NUMBERS:

Provide National Bridge Inventory (NBI) numbers on all bridge class culverts.

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For Bridge Class Culverts, place National Bridge Inventory numbers at the middle of the downstream headwall using 3" block letters.

For all conditions, use appropriate die cut stencils and black paint for placement. All materials, labor and incidentals associated with placing NBI numbers are subsidiary to the various bid items.

Item 421:

Furnish mix designs to the Engineer in a format compatible to the latest version of the Department's Construction Management System (Site Manager). Mix Design templates will be provided by the Engineer.

Provide sulfate resistant concrete for box culverts and all drilled shafts. At the contractor's option, a sulfate resistant high performance concrete may be used; however, high performance concrete is not considered sulfate resistant concrete when Class C fly ash and Type I cement is used in the mix design.

Strength evaluation using maturity testing, Tex-426-A, may be used for all concrete elements except drilled shafts.

Provide a digital hydraulic compression testing Machine and accessories. The machine shall have a minimum testing range of 2500 pounds force to 250,000 pounds force with a hydraulic switching valve to allow for rapid advancing, hold, controlled advancing and rapid retracting. The machine shall have a load cell to measure compressive forces within the testing range and shall be calibrated and verified in accordance with ASTM latest version. The Machine can meet or exceed the following when approved by the Engineer:

ELE International ACCU-TEK250 Digital Compression Tester including accessories or Forney F-250EX Standard Compression Machine including accessories or TxDOT approved equal.

Air-entrain all cast-in-place concrete except for Class "B" and concrete used in drilled shafts. For structural concrete, if the air content is more than 1.5% below the required air, follow manufacturer recommendations to add the necessary approved air bags to increase the air content at the job site. Limit the adding of air bags in the field to one trial. For structural concrete in abutments, bents and columns do not reject the load of concrete due to low air content; accept concrete based on strength tests. Structural concrete in approach slabs, slabs, sidewalks, medians and rails shall meet the provisions of the specification. Precast structural members do not require air entrainment.

Item 423:

For Mechanically Stabilized Earth (MSE) walls, provide a system from one of the following approved suppliers:

Reinforced Earth Walls
The Reinforced Earth Company
1331 Airport Freeway, Suite 302
Euless, TX 76040-4150
(817) 283-5503

Reinforced Soil Embankment Walls
Texas Welded Wire, Inc.
645 W. Hurst Blvd
Hurst, TX 76053
(817) 282-4560

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Retaining Earth Walls
Foster Geotechnical
901 North Highway 77
Hillsboro, TX 76645
(254) 580-9100

Stabilized Earth Wall
Vist-A-Wall Systems, LLC
650 Justice Lane
Mansfield, TX 76063
(817) 507-0200

Strengthened Soil Walls
Lewis Block & Supply Company
P.O.Box 480615
Kansas City, MO 64148
(816) 572-6710

Structural Embankment, LLC
Structural Embankment, LLC
P.O. Box 2200
Weatherford, TX 76086
(817) 599-5700

Tensor Retaining Wall System
Tensor Earth Technologies, Inc.
2500 Northwinds Parkway, Suite 500
Alpharetta, GA 30009
(770) 344-2090

Tricon Retained Soil Walls
Tricon Precast, Ltd.
15055 Henry Road
Houston, TX 77060
(281) 931-9832

VP Wall System
Valley Prestress Products, Inc.
1520 Calhoun Rd.
P.O. Box 309
Eagle Lake, TX 77434
(956) 584-5701

All retaining walls will have a uniform texture and appearance.

Unless otherwise noted in the plans, the top of the leveling pad is located 2 feet below the proposed ground.

Square foot surface area of retaining wall is measured from the top of retaining wall to the top of the leveling pad. Footing adjustments made to accommodate the available optional retaining walls are not measured.

Unless otherwise shown on the plans, provide Type A backfill as defined under this item for permanent MSE or concrete block (CB) walls not subject to inundation. Unless otherwise shown on the plans, provide type D backfill as defined under this item for permanent MSE or CB walls subject to inundation.

Supply drainage aggregate meeting the requirements of this item for use as filter material with the retaining wall.

Cement-Stabilized Backfill (CSB) is not permitted.

RAP is not acceptable as backfill for MSE retaining walls.

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Unless otherwise noted on the plans, provide flowable backfill meeting the requirements of Item 401 between the back of panels and inlets or drainage pipes where the required compaction can not be achieved. Flowable backfill used for this purpose is subsidiary to this item.

Provide earth reinforcements that meet the required parameters given on RW(MSE)DD in the plans. Earth reinforcement length is measured perpendicular to the wall. Adjust skewed earth reinforcements as necessary to obtain required length.

Submit design calculations supporting the details necessary to incorporate coping, railing, inlets, drainage, electrical conduits and any additional necessary features.

The contractor has the option of constructing any of the types of retaining walls for which details and specifications are included in the plans. Footing adjustments made to accommodate the available optional retaining walls are not measured. Regardless of option or options chosen, use the same fascia pattern throughout the entire project, including cast in place full height retaining walls or retaining wall type abutments.

Submit detailed drawings depicting the patterns and matching of precast with cast-in-place for approval.

At contractor's expense, repair all damage to the precast units (such as chips) as required to match the fascia pattern.

Use Embankment Type C2 as non-select embankment backfill as defined under Item 423.2.C.1.

For non-select embankment fill behind retaining walls provide and install fill in accordance with Item 132, Type C2.

For cut walls, the backfill between the select fill zone and the existing ground shall be either select material as required for the select fill zone or backfill meeting or exceeding the requirements of Item 132, type C2. Place material in accordance with Item 132, Type C2 requirements. If existing ground is laid back (i.e. not vertical), the lay back shall be done as a series of equal height benches so as to prevent the formation of a smooth surface at the material interface.

Avoid distinct vertical joints between select backfill and embankment (Non-Select) backfill as required by Section 423.3.E. This may be conveniently done by providing a zone of material behind the strap zone (1' min width) in which alternating lifts of select and non-select materials are interlaced.

Items 423 and 427:

Provide a form liner finish on retaining walls and noise walls. Supply form liners providing a finish similar to that derived from MS-1002, Large Random Ashlar by Milestones or approved equal. Maximum depth of the striations is 1 1/2 inch.

Provide smooth finish for T551-NB(SPL)

For cast in place walls, cast the top two feet smooth.

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Retaining wall colors are shown elsewhere in the plans.

Provide hand painted accent color (alternating stone pattern on retaining walls and noise walls) approximate 10% of wall panel area. Reference walls on FM 2499 from FM 1171 to FM 407.

Item 427:

Finish concrete structures surface area I with an opaque sealer of the color(s) shown elsewhere in the plans in accordance Item 427.

Apply a 4-SF sample of each color on the project surfaces for approval. Adjust color as required by Engineer to compensate for surroundings and natural lighting conditions on the project site.

Ensure that surfaces are free of weak surface material, curing compounds and other surface contaminants prior to coating.

FORM LINER FINISHES: Place architectural concrete treatments as shown. Placement is subsidiary to this item.

Provide form liners that release without leaving pieces of liner material on the concrete and without pulling or breaking concrete from the textured surface. Provide form release agents as recommended by the manufacturer. Replace form liners as directed that have become damaged or worn. Replacement of form liners is considered incidental to the work and no additional compensation is provided.

No horizontal splices in the form liner are permitted. Vertical splices may occur only in valleys between fractured ribs.

Provide sample panels a minimum of ten days in advance of starting construction of the textured concrete surfaces. Construct sample panel(s) in accordance with Item 427.4.B.2.d "Form Liner Finish" using each type of approved form liner. Sample panels must meet the requirements of the plans and specifications and be approved before any construction form liners may be ordered, obtained or used. Provide panels having a textured portion at least 5'-0" by 5'-0" with a representative un-textured surrounding surface. If directed, construct and finish additional test panels until a satisfactory concrete surface texture is obtained.

The approved sample panel is the standard of comparison for the production concrete surface texture. If directed, build a new test panel to demonstrate acceptability of any proposed change in construction method.

Tool or replace areas requiring surface treatment that do not match their associated sample panels. Upon completion, tooled or replaced panels must match the associated sample panel. Tooling or replacement is at the contractor's expense.

For proper placement of the expansion joint behind the rail, omit surface finish from the top of T551 (RW) (DAL) rail to bottom of panel as directed.

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Joint reveal details and location may vary slightly from what is shown to match the adjacent MSE walls as directed. No additional compensation will be allowed.

Item 440:

Reinforcing for abutments, bents and columns are not required to be epoxy coated.

Fiber Reinforced Concrete (FRC) can be used as a substitute for Non-Structural Class Reinforced Concrete in Mow-Strip and Rip Rap Items as approved. FRC may also be used for other Non-Structural Class Reinforced Concrete Items as approved.

Item 442:

Use temperature Zone 1 for CVN testing.

Item 449:

Use Crouse Hinds TL-2, OZ/Gedney Stl, Thomas & Betts Kopr-Shield or other approved electrically conducting lubricant compound.

Item 464:

The concrete collars and the connections of pipes to existing or proposed concrete boxes or pipe will not be paid for directly but will be considered subsidiary to the various bid items.

At locations where storm drains dead-end, plug with a concrete plug of a thickness equal to 1 ½ inches per foot of diameter of pipe with a minimum thickness of 3 inches. The cost of the plugs shall be included in the unit price bid per foot of the various storm drain pipes.

Item 471:

Tackweld all inlet grates and manhole covers to the frame with two 1-inch welds. Supply unpainted cast iron inlet grate and frame and/or cast iron manhole frame and cover.

Item 479:

Accept ownership of inlet grates and manhole covers and properly dispose of them outside the limits of the right of way in accordance with federal, state and local regulations.

Submit a plan detailing proposed methods of handling phased construction at manholes and water valves.

Payment for the phase construction will be considered subsidiary to this item.

Item 496:

Concrete pavement removed as a result of removing the inlets will not be paid for directly but will be considered as subsidiary to Item 496.

Inlet grates and manhole covers become the property of the contractor for disposal.

Item 502:

The Contractor Force Account "Safety Contingency" that has been established for this project is intended to be utilized for work zone enhancements, to improve the effectiveness of the Traffic Control Plan, that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor's Responsible

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Person based on weekly or more frequent traffic management reviews on the project. The Engineer may choose to use existing bid items if it does not slow the implementation of enhancement.

Provide written proposed lane closure information by 1:00 pm on the business day prior to the proposed closures. Do not close lanes when this requirement is not met.

When excavation is required next to a pavement lane carrying traffic and the widening is not completed by the end of the work day, backfill against the edge of the pavement with at least a 3:1 slope using an acceptable material to support vehicular traffic. Carefully remove and dispose of this material when work resumes. Backfilling pavement edges, and the materials required for the work will be subsidiary to this item.

Place barricades and signs in locations that do not obstruct the sight distance of drivers entering the highway from driveways or side streets.

Do not commence work on the road before sunrise. Do not operate or park any equipment/machinery closer than 30 feet from the traveled roadway after sunset unless authorized by the engineer.

When moving unlicensed equipment on or across any pavement or public highways, protect the pavement from all damage using an acceptable method.

Traffic Control Plans with Lane Closures causing backups of 20 minutes or greater in duration will be modified by the Engineer.

Limit lane closures along IH 35E Frontage Road, FM 2181, and Robinson Rd. to the hours between 9:00 am and 3:30 pm. Work in other areas of the project is not restricted to this time frame.

Item 504:

Furnish one Field Office and a Laboratory (Type B) at the project site, one Field Laboratory (Type A) at the concrete batch plant and one Asphalt Mix Control Laboratory (Type D) at the asphalt mixing plant.

Meet the dimensional requirements specified for a Field Laboratory (Type A) for the Asphalt Mix Control Laboratory (Type D).

Provide one local phone line to the field office. Supply one phone jack and one telephone per each room in the field office. The cost of the phone installation and various monthly phone service charges will be the contractor's responsibility.

Chain link fencing will be provided around the field office/laboratory and parking areas.

Provide an all in one printer/scanner/fax/copier with software that is compatible with TxDOT equipment, cost not in excess of \$300. This is subsidiary to the various bid items.

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Item 508:

Testing of materials used in the construction of a temporary detour may be waived when approved by the Engineer.

Item 512:

The contractor will furnish pre-cast F Shape Barriers for traffic control, and remove and retain possession of non-permanent barriers at the end of the project. Pre-cast F Shape Barriers must have drainage slots as detailed on the Concrete Safety Barrier Standards. Submit for approval the type of barrier joint connection proposed for the project.

Item 529:

Provide grooved joints at 10-foot intervals and $\frac{3}{4}$ inch expansion joint material for doweled curb at the same locations as on the existing pavement.

For Curb and Gutter sections, provide grooved joints at 10-foot intervals and $\frac{3}{4}$ inch expansion joint material at a maximum of 50-foot centers and at all radius points and inlets.

Curb and Gutter transitions will be paid for by the foot at the unit price for the corresponding curb or curb and gutter section.

Saw joints at the same location as on the existing pavement.

Item 530:

Provide Class "HES" concrete for concrete intersections and driveways listed or shown on the plans.

Item 536:

Use Class "B" concrete for concrete medians and directional islands.

Item 542:

Salvage metal beam guard fence removed from this project and haul to and stockpile at 2624 W. Prairie, Denton, TX 76201 The work involved in hauling this material will not be paid for directly, but will be considered subsidiary to this item.

Item 556:

Place bell and spigot type pipe with an open joint of approximately $\frac{3}{4}$ inch.

Item 585:

The ride quality requirements for this project will be as follows:

- "Type A" will be utilized on all intermediate pavement layers, all turn lane pavements, all side street pavements, and all driveway pavements.
- "Type B" "Schedule 3" will be utilized on the two outside lanes in each direction on FM 2499 unless the lanes are placed as independent passes.
- "Type B" "Schedule 2" will be utilized on the inside lane in each direction on FM 2499.

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- The “Localized Roughness Penalty” of \$500 per occurrence will be assessed on the two inside lanes in each direction on FM 2499.
- If the contractor places the middle lane in either direction on FM 2499 as an independent pass, then “Type B” “Schedule 2” will apply to this lane also.

Item 618:

Use materials from prequalified material producers list as shown on the Texas Department of Transportation (TxDOT) - Construction Division’s (CST) materials producers list. Category is “Roadway Illumination and Electrical Supplies.”

The location of conduits and ground boxes are diagrammatic only and may be shifted to accommodate field conditions as directed.

Place conduit under existing pavement by an approved boring method. Do not place boring pits closer than 2 feet from the edge of the pavement unless otherwise directed. Do not use water jetting. When conduits are bored, do not exceed 18 inches in the vertical and horizontal tolerances as measured from the intended target point.

Do not use a pneumatically driven device for punching holes beneath the pavement (commonly known as a “missile”).

Furnish and install a non-metallic pull rope in conduit runs in excess of 50 feet.

Use a colored cleaner-primer on all PVC to PVC joints before application of PVC cement.

Seal all conduit ends with a permanently soft, non-toxic duct seal. Use a duct seal that does not adversely affect other plastic materials or corrode metals.

Communications cable shall be installed in a separate conduit and bored separately.

Where two conduits are shown to be installed between ground boxes, these conduits shall be parallel and bored separately. Install cables and conductors of 120 V equipment through one conduit and low voltage equipment in the other conduit. Avoid crossing high and low voltage cables in ground boxes where possible.

Item 620:

The equipment grounding conductor shall be identified by a continuous green colored jacket insulation or bare wire. Grounded conductors (Neutral) shall be identified by a continuous white colored jacket. Ungrounded conductors (Hot) in a 120/240v system shall be identified by each pole or leg. For 240-volt branch circuit fed from 120/240 source ensure one leg is identified by a continuous black colored jacket and the other leg by a continuous red colored jacket.

Item 624:

Slack conductors required by Standard Sheet ED(2)-03 will be subsidiary to Item 624.

Concrete removal required for installation of ground boxes will be subsidiary to Item 624.

Item 628:

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Contact the appropriate utility company during the first three weeks of the project lead-time period to allow adequate time for any necessary utility adjustments, transformer installation, etc.

Label the service enclosures indicating service address as well as all required information as shown on the Electrical Detail (ED) standard sheets. Labeling shall be silk screening or other acceptable method. This work will not be paid for directly, but is subsidiary to this Item.

When concrete for service pole foundations is required, use Class A in accordance with Item 421, "Hydraulic Cement Concrete", except consider the concrete subsidiary to Item 628 for payment purposes. When reinforcing steel for service pole foundations is required, it will be in accordance with Item 440, "Reinforcing Steel", except consider the steel subsidiary to Item 628 for payment purposes.

Use only white insulated wire for neutral wire.

Bill the electrical service power usage to City of Denton.

On each electrical service meter base, install a brass tag with the following requirements:

Dimensions: 1.5 inches tall by 2.5 inches wide.

Engraved tag with numeric portion of street address and attach tag to meter base cover with sheet metal screws. Tag may be placed anywhere on the cover, so as to not interfere with operation of the latch.

Item 636:

Leave the advance guide sign and/or the exit direction sign for an interchange in place at all times unless prior written approval is given. Replace signs removed by the Contractor before the end of the work day.

Manufacture all white legends using Clearview font on overhead and large ground-mounted guide signs. This includes destinations, cardinal directions, exit information and exit numbers. Use the font shown on the current standard sheets for all route markers (including interstate shields) and "Exit Only" panel information. Letter, arrow, and number heights shall all conform to the latest edition of the Standard Highway Sign Design Manual.

Provide two (2) sets of shop drawings for signs. The shop drawings shall conform to the details shown on the plans. The shop drawings shall show the details of the panels, wind beams, stiffeners, joint backing plates, splices, joint backing plates, splices, fasteners, brackets, and sign support connections. The shop drawings shall show letter types and sizes, interline spacing and message arrangements.

Affix a sign identification decal to the back of all signs in accordance with Item 643.

Attach sheeting applied to extruded aluminum panels to each individual extrusion.

Install new overhead signs tilted "down" at 3° if the structure has existing signs that not to be replaced. Otherwise the 3° bracket is not required. The 3° bracket will be mounted directly to the back of the sign and then to the truss. Furnish and obtain approval of all shop drawings detailing the method to accomplish this installation. All material and labor required for this special installation is considered subsidiary to Item 636.

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Ensure the minimum vertical clearance, as shown in the plans, at the highpoint of the roadway after the installation of all overhead signs. Mount new overhead signs with 46% of the sign height positioned below the centerline of the truss, or obtain approval for any exceptions.

Place new guide signs on existing overhead sign structures and bridge rail supports. Existing attachment hardware may be reused if position of sign meets the 46% mounting criteria and if the existing hardware is large enough to accommodate the new sign. Sign support brackets may be cut or removed as directed; however do not extend or lengthen existing brackets. Furnish any additional sign attachment hardware, support brackets, etc. as required. Payment will not be made for the additional brackets, but is considered subsidiary to this Item.

All additional hat signs and plaques mounted to the top of signs shall be supported with wind beams 2.5 times the height of the sign and/or plaque.

Disconnect and isolate any existing electrical power supply prior to removal of the sign lights. Disconnect all sign lighting fixtures on overhead sign structures at the service poles and remove the service poles where indicated on the plans. Abandon associated conduit as directed at these locations. Contact the appropriate power company and close the accounts at these locations. Notify the TxDOT signal shop at (214)320-6682 when the accounts have been closed and remove the meters at these locations and deliver them to the TxDOT signal shop. Remove existing sign lights and walkways on all sign structures and bridge mounted signs within the project limits.

Item 644:

Provide field galvanizing and metallizing equipment, as per Item 445, at all times and make repairs to galvanized surfaces according to the above specification item at intervals as directed.

All sign mounts shall have a clamp base system for all small roadside sign assemblies.

After sign supports with signs attached have been erected, wash individual units requiring cleaning with an approved cleaning solution to remove all grease, oil, dirt, smears, streaks, and other foreign particles.

Item 656:

Before placing the concrete for the controller foundation, coordinate with the City of Denton to ensure that the anchor bolt spacing will match the anchor bolts and cabinet supplied by the city.

Form a 3/4-inch chamfer on the top edge of each signal pole foundation.

Probe for utilities and underground structures prior to drilling foundations. Foundations shall be paid for once regardless of extra work caused by obstructions.

Item 677:

A water blasting method approved by the Engineer will be the only method allowed for the removal of permanent and temporary pavement markings.

Item 680:

Requirements for this Item include the following work, all of which are subsidiary to this Item:

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1. Notify City of Denton at 940-349-8462 one week before beginning any work involving traffic signals.
2. Provide submittal literature for all traffic signal equipment before installation.
3. Pick up and install the Controller/Cabinet, Opticom, Radio, CCTV and BBU equipment supplied by the City of Denton as shown on the plans and as directed by TxDOT and the City.
4. Pick up and install City supplied ILSN arms and internally illuminated street name signs. Coordinate with City at 940-349-8462 prior to ordering signal poles.
5. Pick up and install City supplied 18" X 60" vibration dampeners (with street names for Care Flight) for mast arms. Contractor shall supply mounting hardware as shown on standards sheet MA-DPD-12.
6. Install the controller cabinet in an orientation as directed.
7. Connect all field wiring to the controller assembly. The City of Denton will supply a programmed controller to the Contractor for installation and operation. The Contractor shall hook up the conflict monitor and other equipment, and turn on the signal system. Have a qualified technician on the project site to place the traffic signals in operation. The Contractor shall contact City at 940-349-8462 to arrange field verification of proper functioning of traffic signal system after placing traffic signal in full working operation.
8. Furnish and install other sign panels as shown on plans for mounting on signal poles and mast arms. Fabricate the sign panels in accordance with Item 636, and mount with Astro-Sign Brac, Signfix aluminum channel, or equal as approved by the Engineer.
9. Remove the existing stop sign assemblies immediately after the traffic signals are in full operation.
10. Install the emergency vehicle preemption equipment supplied by the City of Denton.
11. Use qualified personnel to respond to and diagnose all trouble calls during the thirty-day test period. Repair any malfunction to Contractor-supplied signal equipment. Provide to the Engineer a local telephone number, not subject to frequent changes and available on a 24-hour basis, for reporting trouble calls. Response time to reported calls must be less than 2 hours. Make appropriate repairs within 24 hours. Place a logbook in the controller cabinet and keep a record of each trouble call reported. Notify the Engineer of each trouble call. Do not clear the error log in the conflict monitor during the thirty-day test period without approval.
12. Prevent any damage to property owner's poles, fences, shrubs, mailboxes, etc. Protect all underground and overhead utilities and repair any damage. Provide access to all driveways during construction.
13. The concrete foundation for the controller as shown on the TS-CF-04 is diagrammatic and the dimensions will be adjusted in the field to fit existing conditions.

Item 681:

Requirements for this Item include the following work, all of which are subsidiary to this Item:

1. Notify City of Denton at 940-349-8462 one week before beginning any work involving traffic signals.
2. Re-guy signal heads and re-strap the cable after making adjustments to head locations. Accomplish relocation of signal heads for a phase change during the same day.
3. Bottom tether cable for signal heads and signs will be required.
4. Provide submittal literature for all traffic signal equipment before installation.
5. Existing traffic signal controller to be used. Temporary signals to be integrated with existing system. Connect all field-wiring to the existing controller assembly. The City will assist in

County: Denton**Highway: FM 2499**

determining how the detector cables are to be connected, and will also program the controller for operation, hook up the conflict monitor, detector units, and other equipment, and turn on the controller. Have a qualified technician on the project site to place the traffic signals in operation.

6. Operate and maintain the temporary signal. Provide a telephone number to the District for trouble calls. Check the signal equipment at least monthly, and within 24 hours in response to complaints, and immediately repair or replace any malfunctioning Contractor-supplied equipment. Notify the Department immediately upon finding malfunctioning Department-supplied equipment.
7. Furnish and install Radar Presence Detectors as shown on plans.
8. Furnish and install LED Luminaires as shown on plans.
9. Temporary signal shall remain in operation and become the property of TxDOT at the completion of the project.

Item 682:

Install signal head attachments so that the wiring to each signal head passes from the mast arm through the attachment hardware to the signal head. Do not leave cable or wiring exposed.

Provide signal head attachments that allow for adjustment about the horizontal and vertical axis.

Provide black polycarbonate signal heads and tubing with fluted/vented aluminum back-plates.

Turn down signal heads or cover with burlap or other material, as approved, until traffic signal is placed in operation.

Mount signal heads level and plumb and aim as directed by City of Denton.

Item 684:

Provide stranded 14 AWG Type A signal cables for all vehicle and pedestrian signal heads.

Provide a separate multi-conductor signal cable (14 AWG) inside pedestal poles and signal poles from the terminal strip to each signal head as shown on the plans.

Identify each cable as shown on the plans (cable 1, etc.) with permanent marking labels (Panduit Type PLM standard single marker tie, Thomas&Betts Type 548M, or equal) at each ground box, pole base, and controller.

Item 686:

Provide 12 circuit Buchanan Type 112SN, Kulka Type 985-GP-12 CU, or equal terminal strips in the signal pole access compartment. Provide additional terminal strips of 8 circuits each when more than 12 circuits are required. The conductors for the Line and Load side of the terminal strip shall be identified with a plastic label with two straps per tag. The line side shall have each signal head, PED head, and push button identified on the tag.

Mark pole shafts and mast arms with the identification numbers from the plans to facilitate field-assembly. Identify pole shafts and mast arms by intersection for projects with multiple intersections.

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Provide nuts on top and bottom (double nuts) of the base plate as shown on the plans.

Set anchor bolts for mast arm signal poles and strain poles so that two are in tension and two are in compression. Obtain approval of anchor bolt placement before placing concrete.

Provide vertical clearance of 17 to 19 feet from the roadway to the lowest point of the signal head or mast arm. Place signal heads 40 feet minimum and 180 feet maximum from the stop line. If the nearest signal is more than 180 feet from the stop line, place a supplemental near-side signal head. Determine the field measurements and elevations from the actual field location of the poles, considering all above and below ground utilities and existing roadway elevations.

Item 1122:

Take all practicable precautions to prevent debris from being discharged into the Waters of Texas or a designated wetland. Install Best Management Practices before demolition begins and maintain them during the demolition. Remove any debris or construction material that escapes containment devices and are discharged into the restricted areas, before the next rain event or within 24 hours of the discharge.

If temporary construction stream crossings are allowed under a Nationwide Permit, submit in writing for approval the type and location of each temporary stream crossing. Use temporary bridges, timber mats, or other structurally sound and non-eroding material for temporary stream crossings. A temporary culvert crossing will consist of storm sewer pipes and 4- to 8-inch nominal size rock. Temporary stream crossings must not cause more than minimal changes to the hydraulic flow characteristics of the stream, increase flooding, or cause more than minimal degradation of water quality. Remove the temporary stream crossings in their entirety and return the affected areas to their pre-existing elevation. All work and materials use for temporary construction stream crossings will not be paid for directly but are subsidiary to pertinent Items.

Provide SW3P Signs. Obtain from the Engineer a copy of the project's completed TPDES Storm Water Program Construction Site Notice and signed Contractor Certification Statement. Laminate the sheets and bond with adhesive to 36" X 36" plywood sign blanks. Ensure the sheets remain dry. Apply Type C Blue reflective sheeting as the background and add the text "SW3P" in 5" white lettering, centered at the top. Attach the signs to approved temporary mounts and locate at each of the project limits just inside the right of way line at a readable height or as directed by the Engineer. If the sign cannot be placed outside the clear zone, it must adhere to the TMUTCD. SW3P signs, maintenance, and repostings (for replacement or as needed to ensure readability) will be subsidiary to Item 502.

Item 3268:

Tack Coat is required.

Design for a target Laboratory-molded density of 97.0% when using the TGC (Tex-204-F, part I).

Use aggregate that meets the Surface Aggregate Classification (SAC) requirement of Class B.

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Provide the engineer the opportunity to witness all mixture design tests. The engineer may require a retest if not given the opportunity to witness.

Dilution of tack is not allowed.

Provide PG binder 64-22 in Type B mixture.

Dense-Graded Hot-Mix Asphalt used as concrete pavement underlayment is deemed as "Exempt Production".

Item 6007:

Salvage the existing traffic signals at IH35 E & State School Road as shown on the plans. Salvage poles, cabinets, service poles and equipment, exposed conduit, and any other equipment as directed. This equipment remains the property of the City of Denton. The material listed above is to be stockpiled at a location designated by the city. Contact Mr. Bud Vokoun at 940-349-8910 48 hours in advance of delivery. All other material removed in this project will become the property of the Contractor. Dispose of material off the right of way in accordance with federal, state, and local regulations. Maintain the operation of the existing traffic signal until directed to remove it.

Completely remove timber poles not set in concrete without cutting off the pole. Timber poles set in concrete are considered unsalvageable.

Item 8835:

If a traffic or pedestrian signal pole includes two APS units, or if the APS units cannot be installed a minimum of 10' apart, speech walk messages shall be used. Each speech walk message shall be programmed to clearly state the name of the roadway to be crossed as a result of activating that particular APS unit.

Verify the location of the push button assemblies and the direction of the arrows on the signs prior to installation.

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The list of material below is for the Contractor's information only.
It is the responsibility of the Contractor to verify
all items and quantities listed below.

LIST OF MATERIAL/LABOR
SUBSIDIARY TO ITEM 680

FM 2499 AT STATE SCHOOL RD		
ITEM DESCRIPTION	PRICE UNIT	TOTAL QUANTITY
INSTALL ILSN ARM AND STREET NAME SIGN	EA	4
INSTALL RADIO EQUIPMENT	LS	1
INSTALL CCTV EQUIPMENT	LS	1
INSTALL OPTICOM EQUIPMENT	LS	1
INSTALL BBU CABINET	EA	1
INSTALL CONTROLLER CABINET	EA	1
TRAFFIC SIGNAL CONTROLLER BASE	EA	1
CONCRETE FOUNDATION (8'X9'X6", CLASS B)	CY	1.3
FURNISH & INSTALL SIGN ON POLE OR MAST ARM	EA	4
INSTALL VIBRATION DAMPENER/ST. NAME SIGN	EA	4
Wire Cabinet	LS	1

FM 2499 AT UNICORN LAKE BLVD		
ITEM DESCRIPTION	PRICE UNIT	TOTAL QUANTITY
INSTALL ILSN ARM AND STREET NAME SIGN	EA	4
INSTALL RADIO EQUIPMENT	LS	1
INSTALL CCTV EQUIPMENT	LS	1
INSTALL OPTICOM EQUIPMENT	LS	1
INSTALL BBU CABINET	EA	1
INSTALL CONTROLLER CABINET	EA	1
TRAFFIC SIGNAL CONTROLLER BASE	EA	1
CONCRETE FOUNDATION (8'X9'X6", CLASS B)	CY	1.3
FURNISH & INSTALL SIGN ON POLE OR MAST ARM	EA	2
INSTALL VIBRATION DAMPENER/ST. NAME SIGN	EA	4
Wire Cabinet	LS	1

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LIST OF MATERIAL
FURNISHED BY THE CITY OF DENTON

CITY OF DENTON		
ITEM DESCRIPTION	PRICE UNIT	TOTAL QUANTITY
8 Phase NEMA Controller Complete W/Accessories	EA	2
ILSN ARM/STREET NAME SIGN	EA	8
RADIO/ANTENNA	EA	2
RADIO COMMUNICATION CABLE(ETHERNET)	LF	161
BBU/CABINET	EA	2
ETHERNET SWITCH	EA	2
CCTV CAMERA	EA	2
CCTV COMMUNICATION CABLE(ETHERNET)	LF	181
OPTICOM DUAL CHANNEL DETECTOR	EA	3
OPTICOM SINGLE CHANNEL DETECTOR	EA	1
OPTICOM CABLE	LF	708
VIBRATION DAMPENER/ST. NAME SIGN	EA	8

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LIST OF MATERIAL/LABOR
SUBSIDIARY TO ITEM 681

ITEM	PRICE	TOTAL
DESCRIPTION	Unit	QUANTITY
40 FT TIMBER POLE (CLASS 2)	EA	4
CABLE STRAPS	EA	300
3/8 INCH ZINC-COATED STRANDED STEEL CABLE	LF	1565
1/4 INCH ZINC-COATED STRANDED STEEL CABLE	LF	335
GROUND ANCHORS	EA	6
YELLOW PLASTIC GUY GUARD	EA	6
DOUBLE EYE ANCHOR ROD	EA	6
5/8" X 8' COPPERCLAD GROUND ROD W/CLAMP	EA	4
3 INCH WEATHERHEAD	EA	1
2 INCH WEATHERHEAD	EA	4
INSTALL OPTICOM EQUIPMENT (INTERSECTION)	LS	1
REGULATORY SIGN PANEL (R10-12,ETC)	EA	3
SINGLE STREET NAME SIGN PANEL	EA	3
SIGNAL HEADS (5 SEC)	EA	1
SIGNAL HEADS (3 SEC)	EA	5
SIGNAL CABLE 5 CNDR	LF	574
SIGNAL CABLE 7 CNDR	LF	482
BARE #6 CNDR	LF	204
RADAR DETECTOR CABLE	LF	776
LUMINAIRE CABLE #8 CNDR	LF	764
2 INCH RM CONDUIT	LF	50
3 INCH RM CONDUIT	LF	20
2 INCH PVC CONDUIT	LF	7
3 INCH PVC CONDUIT	LF	127
250 W EQ LED LUMINAIRES W/ WOOD POLE MAST ARMS	EA	3
RADAR PRESENCE DETECTOR	EA	3

CONTROL : 2681-01-012
PROJECT : C 2681-1-12
HIGHWAY : FM 2499
COUNTY : DENTON

TEXAS DEPARTMENT OF TRANSPORTATION

GOVERNING SPECIFICATIONS AND SPECIAL PROVISIONS

ALL SPECIFICATIONS AND SPECIAL PROVISIONS APPLICABLE TO THIS PROJECT
ARE IDENTIFIED AS FOLLOWS:

STANDARD SPECIFICATIONS: ADOPTED BY THE TEXAS DEPARTMENT OF
----- TRANSPORTATION JUNE 1, 2004.
STANDARD SPECIFICATIONS ARE INCORPORATED
INTO THE CONTRACT BY REFERENCE.

ITEMS 1 TO 9 INCL., GENERAL REQUIREMENTS AND COVENANTS
ITEM 100 PREPARING RIGHT OF WAY
ITEM 104 REMOVING CONCRETE
ITEM 105 REMOVING STABILIZED BASE AND ASPHALT PAVEMENT
ITEM 110 EXCAVATION (132)
ITEM 132 EMBANKMENT (100)(204)(210)(216)(400)
ITEM 161 COMPOST (160)
ITEM 162 SODDING FOR EROSION CONTROL (166)(168)
ITEM 164 SEEDING FOR EROSION CONTROL (162)(166)(168)
ITEM 168 VEGETATIVE WATERING
ITEM 204 SPRINKLING
ITEM 260 LIME TREATMENT (ROAD-MIXED) (105)(132)(204)(210)(300)
(310)(520)
ITEM 360 CONCRETE PAVEMENT (300)(420)(421)(438)(440)(529)(585)
ITEM 400 EXCAVATION AND BACKFILL FOR STRUCTURES (132)(401)(420)
(421)
ITEM 402 TRENCH EXCAVATION PROTECTION
ITEM 403 TEMPORARY SPECIAL SHORING (423)
ITEM 416 DRILLED SHAFT FOUNDATIONS (420)(421)(440)(448)
ITEM 423 RETAINING WALLS (110)(132)(400)(420)(421)(424)(440)(445)
(458)(556)(7381)
ITEM 432 RIPRAP (247)(420)(421)(427)(431)(440)
ITEM 450 RAILING (420)(421)(424)(440)(441)(442)(445)(446)(448)
(540)
ITEM 462 CONCRETE BOX CULVERTS AND STORM DRAINS (400)(420)(421)
(424)(440)(464)(476)
ITEM 464 REINFORCED CONCRETE PIPE (400)(476)
ITEM 465 MANHOLES AND INLETS (400)(420)(421)(440)(471)
ITEM 466 HEADWALLS AND WINGWALLS (400)(420)(421)(430)(440)(464)
ITEM 467 SAFETY END TREATMENT (400)(420)(421)(430)(432)(440)(445)

(460)(464)

ITEM 479 ADJUSTING MANHOLES AND INLETS (400)(421)(465)

ITEM 496 REMOVING STRUCTURES (430)(6007)

ITEM 500 MOBILIZATION

ITEM 502 BARRICADES, SIGNS, AND TRAFFIC HANDLING

ITEM 504 FIELD OFFICE AND LABORATORY

ITEM 508 CONSTRUCTING DETOURS

ITEM 512 PORTABLE CONCRETE TRAFFIC BARRIER (420)(421)(424)(440)(442)

ITEM 528 COLOR TEXTURED CONCRETE AND LANDSCAPE PAVERS (132)(247)(420)(421)(440)

ITEM 529 CONCRETE CURB, GUTTER, AND COMBINED CURB AND GUTTER (360)(420)(421)(440)

ITEM 530 INTERSECTIONS, DRIVEWAYS, AND TURNOUTS (247)(260)(263)(275)(276)(292)(316)(330)(334)(340)(360)(421)(440)

ITEM 531 SIDEWALKS (104)(360)(420)(421)(440)(530)

ITEM 542 REMOVING METAL BEAM GUARD FENCE

ITEM 552 WIRE FENCE (445)(492)

ITEM 560 MAILBOX ASSEMBLIES

ITEM 618 CONDUIT (400)(445)(476)(622)

ITEM 620 ELECTRICAL CONDUCTORS

ITEM 621 TRAY CABLE

ITEM 624 GROUND BOXES (420)(421)(432)(440)(618)(620)

ITEM 628 ELECTRICAL SERVICES (441)(445)(449)(618)(620)(627)(656)

ITEM 636 ALUMINUM SIGNS (643)

ITEM 644 SMALL ROADSIDE SIGN SUPPORTS AND ASSEMBLIES (421)(440)(441)(442)(445)(634)(636)(643)(656)

ITEM 658 DELINEATOR AND OBJECT MARKER ASSEMBLIES (445)

ITEM 662 WORK ZONE PAVEMENT MARKINGS (666)(668)(672)(677)

ITEM 666 REFLECTORIZED PAVEMENT MARKINGS (316)(318)(662)(677)(678)

ITEM 672 RAISED PAVEMENT MARKERS (677)(678)

ITEM 678 PAVEMENT SURFACE PREPARATION FOR MARKINGS

ITEM 680 INSTALLATION OF HIGHWAY TRAFFIC SIGNALS (610)(636)(656)

ITEM 681 TEMPORARY TRAFFIC SIGNALS (628)(680)(8889)(8941)

ITEM 682 VEHICLE AND PEDESTRIAN SIGNAL HEADS

ITEM 684 TRAFFIC SIGNAL CABLES

ITEM 686 TRAFFIC SIGNAL POLE ASSEMBLIES (STEEL) (416)(421)(441)(442)(445)(449)

ITEM 687 PEDESTAL POLE ASSEMBLIES

SPECIAL PROVISIONS: SPECIAL PROVISIONS WILL GOVERN AND TAKE
 ----- PRECEDENCE OVER THE SPECIFICATIONS ENUMERATED
 HEREON WHEREVER IN CONFLICT THEREWITH.

SPECIAL LABOR PROVISIONS FOR STATE PROJECTS (000---007)
 WAGE RATES

SPECIAL PROVISION "DEPARTMENT DIVISION MAILING AND PHYSICAL ADDRESS"
 (000---011)

SPECIAL PROVISION "SMALL BUSINESS ENTERPRISE IN STATE FUNDED PROJECTS"
 " (000--2301)

SPECIAL PROVISION "PARTNERING" (000--2329)

SPECIAL PROVISION "SCHEDULE OF LIQUIDATED DAMAGES" (000--2332)

SPECIAL PROVISION "NONDISCRIMINATION" (000--2607)
 SPECIAL PROVISION "IMPORTANT NOTICE TO CONTRACTORS"
 (000--2839)
 SPECIAL PROVISION "IMPORTANT NOTICE TO CONTRACTORS"
 (000--3022)
 SPECIAL PROVISION TO ITEM 1 (001---015)
 SPECIAL PROVISIONS TO ITEM 2 (002---017)(002---044)
 SPECIAL PROVISION TO ITEM 3 (003---033)
 SPECIAL PROVISION TO ITEM 4 (004---017)
 SPECIAL PROVISION TO ITEM 5 (005---004)
 SPECIAL PROVISIONS TO ITEM 6 (006---030)(006---047)
 SPECIAL PROVISION TO ITEM 7 (007---918)
 SPECIAL PROVISIONS TO ITEM 8 (008---009)(008---097)
 SPECIAL PROVISIONS TO ITEM 9 (009---012)(009---015)
 SPECIAL PROVISION TO ITEM 100 (100---002)
 SPECIAL PROVISION TO ITEM 132 (132---001)
 SPECIAL PROVISION TO ITEM 161 (161---006)
 SPECIAL PROVISION TO ITEM 164 (164---002)
 SPECIAL PROVISION TO ITEM 166 (166---001)
 SPECIAL PROVISION TO ITEM 247 (247---033)
 SPECIAL PROVISION TO ITEM 260 (260---003)
 SPECIAL PROVISION TO ITEM 275 (275---003)
 SPECIAL PROVISION TO ITEM 300 (300---039)
 SPECIAL PROVISION TO ITEM 316 (316---016)
 SPECIAL PROVISION TO ITEM 318 (318---010)
 SPECIAL PROVISION TO ITEM 330 (330---001)
 SPECIAL PROVISION TO ITEM 340 (340---003)
 SPECIAL PROVISION TO ITEM 360 (360---013)
 SPECIAL PROVISION TO ITEM 416 (416---001)
 SPECIAL PROVISION TO ITEM 420 (420---002)
 SPECIAL PROVISION TO ITEM 421 (421---035)
 SPECIAL PROVISION TO ITEM 424 (424---003)
 SPECIAL PROVISION TO ITEM 425 (425---001)
 SPECIAL PROVISION TO ITEM 429 (429---008)
 SPECIAL PROVISION TO ITEM 431 (431---001)
 SPECIAL PROVISION TO ITEM 440 (440---006)
 SPECIAL PROVISION TO ITEM 441 (441---008)
 SPECIAL PROVISION TO ITEM 442 (442---016)
 SPECIAL PROVISION TO ITEM 447 (447---002)
 SPECIAL PROVISION TO ITEM 448 (448---002)
 SPECIAL PROVISION TO ITEM 450 (450---001)
 SPECIAL PROVISION TO ITEM 462 (462---015)
 SPECIAL PROVISION TO ITEM 464 (464---006)
 SPECIAL PROVISION TO ITEM 465 (465---002)
 SPECIAL PROVISION TO ITEM 476 (476---003)
 SPECIAL PROVISION TO ITEM 500 (500---011)
 SPECIAL PROVISION TO ITEM 502 (502---033)
 SPECIAL PROVISION TO ITEM 508 (508---001)
 SPECIAL PROVISION TO ITEM 512 (512---002)
 SPECIAL PROVISION TO ITEM 530 (530---006)
 SPECIAL PROVISION TO ITEM 540 (540---031)
 SPECIAL PROVISION TO ITEM 560 (560---001)
 SPECIAL PROVISION TO ITEM 610 (610---015)
 SPECIAL PROVISION TO ITEM 620 (620---001)

SPECIAL PROVISION TO ITEM 624 (624---014)
 SPECIAL PROVISION TO ITEM 628 (628---003)
 SPECIAL PROVISION TO ITEM 636 (636---014)
 SPECIAL PROVISION TO ITEM 643 (643---001)
 SPECIAL PROVISION TO ITEM 672 (672---034)
 SPECIAL PROVISION TO ITEM 681 (681---002)
 SPECIAL PROVISION TO ITEM 682 (682---003)
 SPECIAL PROVISION TO ITEM 687 (687---005)
 SPECIAL PROVISION TO SPECIAL SPECIFICATION ITEM 1122 (1122--001)

SPECIAL SPECIFICATIONS:

ITEM 1122 TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL
 CONTROLS
 ITEM 2271 ADJUSTING EXIST FIRE HYDRANT ASSEMBLY
 ITEM 3268 DENSE-GRADED HOT-MIX ASPHALT
 ITEM 4369 STORMWATER TREATMENT SYSTEM
 ITEM 5296 NOISE WALLS (420)(421)(424)(425)(426)(427)(429)(440)(441)
 (442)(445)(446)(447)(448)(449)
 ITEM 5445 DEAD END ROADWAY BARRICADE
 ITEM 6007 REMOVING TRAFFIC SIGNALS
 ITEM 7381 PREFABRICATED SOIL DRAINAGE MATS
 ITEM 8615 RADAR ADVANCE DETECTION DEVICES
 ITEM 8835 ACCESSIBLE PEDESTRIAN SIGNAL UNITS
 ITEM 8889 LED ROADWAY ILLUMINATION (441)(442)(445)(446)(449)(616)
 (620)
 ITEM 8941 RADAR PRESENCE DETECTOR

GENERAL: THE ABOVE-LISTED SPECIFICATION ITEMS ARE THOSE UNDER WHICH
 ----- PAYMENT IS TO BE MADE. THESE, TOGETHER WITH SUCH OTHER
 PERTINENT ITEMS, IF ANY, AS MAY BE REFERRED TO IN THE ABOVE-
 LISTED SPECIFICATION ITEMS, AND INCLUDING THE SPECIAL
 PROVISIONS LISTED ABOVE, CONSTITUTE THE COMPLETE SPECIFI-
 CATIONS FOR THIS PROJECT.

SPECIAL SPECIFICATION**4369****Stormwater Treatment System**

1. **Description.** Furnish and Install storm water treatment system, complete in place. Work shall include all labor, materials, equipment and incidentals required to install storm water treatment systems, pipe connections and appurtenances in accordance with the Drawings and these Specifications.
2. **Materials.** Provide new materials that comply with the details shown on the plans and in accordance with the following:
 - Item 420, “Concrete Structures”
 - Item 421, “Hydraulic Cement Concrete”
 - Item 429, “Concrete Structure Repair”
 - Item 440, “Reinforcing Steel”
 - Item 471, “Frames, Grates, Rings, and Covers”

Materials used for storm water treatment units and appurtenances (both above and below ground) must be capable of withstanding aggressive biological, chemical and loading environments, typical of the geographic area in which the units are being installed, including freeze-thaw weather cycles, earth pressure and hydrostatic pressures.

- A. **Concrete box.** Furnish Class C (HPC) concrete for storm water treatment box unless otherwise shown on the plans. Construct precast storm water treatment box in accordance with Item 420, “Concrete Structures” or ASTM C 478. Air entrained concrete will not be required in precast concrete members. Use Type II Portland cement conforming to ASTM C 150.
- B. **Mortar.** Furnish mortar composed of 1 part hydraulic cement and 2 parts clean sand. Hydrated lime or lime putty may be added to the mix to a maximum of 10% by weight of the total dry mix.
- C. **Concrete Blocks.** Provide concrete blocks that meet ASTM C 139.
- D. **Traffic load.** Provide concrete box and riser that meet HS20 loading requirements.
- E. **Sealing.** Apply sealant as shown on the plans, as recommended by the manufacturer, or as directed by the Engineer.
- F. **Frames, Grates, Rings, and Covers.** Furnish materials as shown on the plans and in accordance with Item 471, “Frames, Grates, Rings, and Covers.”

G. Treatment unit.

- 1. General.** Provide storm water treatment systems, pipe connections and appurtenances in accordance with the Drawings and these Specifications.

Alternate designs must be acceptable to the Engineer and not deviate from the functional dimensions as shown on the plans. Alternate designs, including any structural re-design requirements, are to be designed and sealed by a licensed professional engineer registered in the State of Texas. All storm water treatment units must be provided by the same Manufacturer.

- 2. Performance.** Storm water treatment system shall be capable of removing at least 70% of the net annual Total Suspended Solids (TSS) based on a typical gradation of 38-500 microns with a d50-micron particle size of 75 or must be capable of removing at least 70% of the net annual Total Suspended Solids (TSS) for a gradation range, determined by the Engineer to be an Approved Equal to the aforementioned gradation range. It must also be able to remove particles greater than 150-microns (sand-size particles). In order to substantiate removal efficiencies, the contractor must submit full scale laboratory testing data, in conjunction with rainfall data (10 year minimum record) from the general geographic area in which the units are being installed, to the Engineer for Approval. Submittals must be sealed by a licensed professional engineer.

Storm water treatment unit should not allow surcharge of the upstream piping network during dry weather conditions.

Stormwater treatment system shall have, as a minimum, a swirl distribution or grit chamber for sediment removal and a floatable chamber with mechanisms for oils, organic debris, and trash removal.

Stormwater treatment unit shall have a means of preventing the introduction of trapped oil and floatable contaminants to the downstream piping during routine maintenance, and to ensure that no oil escapes the system during the ensuing rain event.

Stormwater treatment units must provide direct access to the sediment and floatable contaminant storage chambers to facilitate maintenance. There shall be no internal components that obstruct maintenance access to these chambers.

Stormwater treatment units shall have an associated peak treatment flow greater than or equal to the design treatment flow, as designated on the plans. Stormwater treatment units shall retain floatables and trapped sediment up to and including peak treatment flows.

For non-ground stormwater treatment units, located under the bridge deck, units must have an acceptable mechanism for anchoring units to bent cap or documentation must be provided to substantiate that the unit will not incur any movement over time.

3. **Construction.** Submit shop drawings showing details for construction, including structural details, in accordance with the requirements of Section 2 for review and approval. Show annotations on the shop drawings to indicate all materials to be used and all applicable standards for materials, required tests of materials and design assumptions for structural analysis. Shop drawings will be signed and sealed by a Texas P.E.

Submit 3 full sets of manufacturer's literature and Operation and Maintenance Manual for the selected storm water treatment system for review and approval. Literature shall include documentation as to the expected design life for stormwater treatment unit and any warranties. The design life of the storm water treatment unit should be what would be expected from a standard concrete storm water structure. Provide documentation demonstrating that the manufacturer has at least 5 years of satisfactory experience and has the capability to perform the work.

Provide skilled and experienced personnel for the installation of stormwater treatment system.

Stake (ground units only) and install storm water treatment units to match the final line and grade as shown on the plans or as directed by the Engineer. The Engineer may direct the Contractor to shift the stormwater treatment unit location(s), if necessary, to secure a more desirable location(s).

Prior to installation, all precast storm water treatment units will be inspected for general appearance, dimensions, soundness, etc. The concrete surface shall be dense, close textured and free of blisters, cracks, roughness and exposure of reinforcement. Repair any damaged concrete boxes in accordance with Item 429, "Concrete Structure Repair." Remove and replace any damaged storm water treatment system beyond repair, as directed by the Engineer, at no extra cost. Complete storm water treatment system installation in accordance with the plans. For ground systems, place the base unit on a granular sub base of minimum thickness of 6 in. after compaction. The granular sub base shall be checked for level prior to setting and the base section of the unit shall be checked for level at all four corners after it is set. If the slope from any corner to any other corner exceeds 0.5%, the base section shall be removed and granular sub base material re-leveled. Also for ground systems, backfill to original ground elevation in accordance with Item 400, "Excavation and Backfill for Structures."

Maintain the storm water treatment system until the project is accepted by providing monthly routine inspections and scheduling cleaning. Cleaning the storm water treatment units is required at least twice a year, or when 15% of the operating storage volume is filled with solids, or when the oil levels reach 1 in. or greater, or as directed by the Engineer. A vacuum truck company, licensed for solid wastes disposal, should be contracted to clean out the unit.

4. **Measurement.** Stormwater treatment units, satisfactorily completed in accordance with the plans and specifications, will be measured by each, of the type specified, complete in place.
5. **Payment.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for as follows:

Stormwater Treatment Unit. Payment for complete Stormwater Treatment Unit will be made at the unit price bid for “Stormwater Treatment Unit” of the type specified. These prices are full compensation for furnishing concrete, reinforcing steel, concrete blocks, mortar, aluminum and castings, frames, grates, rings and covers, treatment units, connection pipes, excavation, and backfill and for all other materials, tools, equipment, labor, incidentals, cleaning, and maintenance as necessary to install storm water treatment units, complete in place, in accordance with the plans and specifications.